CLAIMS

What is claimed is:

1. A circuit element comprising:
a nucleic acid template;
two or more regions of the template coated with different materials.

2. The circuit element according to claim 1 wherein each of the different materials is at least partially conductive.

3. The circuit element according to claim 2 wherein each of the different materials has a different resistivity from the other.

4. The circuit element according to claim 2 wherein each of the different materials is a doped semiconductor material.

5. The circuit element according to claim 4 wherein the doped semiconductor material is either an n-type or a p-type semiconductor material.

6. The circuit element according to claim 1 wherein the nucleic acid template is DNA.

7. The circuit element according to claim 1 wherein the nucleic acid template is RNA.

8. A resistor comprising a first material separated by a second material, the second material having a different resistivity than the first material and the first and second materials having a common nucleic acid template core.

9. The resistor according to claim 8 wherein the first material comprises metal and the second material comprises an at least partially conductive material.

10. The resistor according to claim 8 wherein the nucleic acid template is DNA.

11. The resistor according to claim 8 wherein the nucleic acid template is RNA.

12. A resistor comprising:

at least one resistive material; and

a pair of at least partially conductive leads, each of the leads coupled to the resistive material;

the resistive material and the pair of leads having a nucleic acid template core.

13. The resistor according to claim 12 wherein each of the pair of leads is made at least one metal material which coats a region of the nucleic acid template core.

14. The resistor according to claim 12 wherein the nucleic acid template is DNA.

15. The resistor according to claim 12 wherein the nucleic acid template is RNA.

16. A diode comprising a first type of semiconductor material adjacent to a second type of semiconductor material, the first and second types of semiconductor materials having a common nucleic acid template core.

17. The diode according to claim 16 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

18. The diode according to claim 16 further comprising a pair of at least partially conductive leads, each of the leads coupled to one of the first and second types of semiconductor materials and having the common nucleic acid template core.

19. The diode according to claim 16 wherein the nucleic acid template is DNA.

20. The diode according to claim 16 wherein the nucleic acid template is RNA.

21. A diode comprising:

a first type of semiconductor material;

a second type of semiconductor material adjacent to the first type of semiconductor material; and

a pair of at least partially conductive leads, each of the leads coupled to one of the first and second types of semiconductor materials;

the first and second types of semiconductor materials and the pair of leads having a nucleic acid template core.

22. The diode according to claim 21 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

23. The diode according to claim 21 wherein the nucleic acid template is DNA.

24. The diode according to claim 21 wherein the nucleic acid template is RNA.

25. A capacitor comprising a pair of at least partially conductive plates separated by a dielectric, each of the plates having a nucleic acid template core.

26. The capacitor according to claim 25 further comprising a pair of at least partially conductive leads, each of the leads coupled to one of the plates and having the common nucleic acid template core.

27. The capacitor according to claim 25 wherein the nucleic acid template is DNA.

28. The capacitor according to claim 25 wherein the nucleic acid template is RNA.

29. A capacitor comprising a pair of at least partially conductive plates separated by a dielectric, the dielectric having a nucleic acid template core.

30. The capacitor according to claim 29 wherein the dielectric is air.

31. The capacitor according to claim 29 wherein the nucleic acid template is DNA.

32. The capacitor according to claim 29 wherein the nucleic acid template is RNA.

33. A transistor comprising a first type of semiconductor material separated by a second type of semiconductor material, the first and second types of semiconductor materials having a common nucleic acid template core.

34. The transistor according to claim 33 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

35. The transistor according to claim 33 wherein the nucleic acid template core comprises three branches having a common intersection, the second type of semiconductor material coating at least a portion of the common intersection and the first type of semiconductor material coating at least a portion of two of the three branches adjacent the intersection.

36. The transistor according to claim 33 further comprising a plurality of at least partially conductive leads, each of the leads coupled to one of the first and second types of semiconductor materials along one of the three branches and having the common nucleic acid template core.

37. The transistor according to claim 33 wherein the nucleic acid template is DNA.

38. The transistor according to claim 33 wherein the nucleic acid template is RNA.

39. A transistor comprising:

a first type of semiconductor material;

a second type of semiconductor material separating the first type of semiconductor material; and

a plurality of at least partially conductive leads, each of the leads is coupled to one of the first and second types of semiconductor materials;

the first and second types of semiconductor materials and the leads having a nucleic acid template core.

40. The transistor according to claim 39 wherein the nucleic acid template core comprises three branches having a common intersection, the second type of semiconductor material coating at least a portion of the common intersection and the first type of semiconductor material coating at least a portion of two of the three branches adjacent the intersection.

41. The transistor according to claim 40 wherein each of the leads is coupled to one of the first and second types of semiconductor materials along one of the three branches.

42. The transistor according to claim 39 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

43. The transistor according to claim 39 wherein the nucleic acid template is DNA.

44. The transistor according to claim 39 wherein the nucleic acid template is RNA.

45. An inducer comprising a coil of at least partially conductive material, the coil a coil of at least partially conductive material having a nucleic acid template core.

46. The inducer according to claim 45 having a core, the coil of at least partially conductive material wrapped at least partially around the core.

47. The inducer according to claim 46 wherein the core comprises a histone-like protein.

48. The inducer according to claim 45 wherein the nucleic acid template is DNA.

49. The inducer according to claim 45 wherein the nucleic acid template is RNA.

50. A method for making a resistor, the method comprising:

protecting at least one region of a nucleic acid molecule template using a nucleic acid binding molecule;

coating unprotected regions of the nucleic acid molecule template with a first conductive material;

removing the nucleic acid binding molecule from the protected region; and

coating the protected region with a second conductive material, where the second conductive material has a different resistivity from the first conductive material.

51. The method according to claim 50 wherein the nucleic acid template is DNA.

52. The method according to claim 50 wherein the nucleic acid template is RNA.

53. A method for making a diode, the method comprising:

protecting at least one region of a nucleic acid molecule template using two or more nucleic acid binding molecules;

coating unprotected regions of the nucleic acid molecule template with a conductive material,

removing at least one of the nucleic acid binding molecules from a one portion of the protected region;

coating the one portion of the protected region with a first-type of semiconductor material;

removing any remaining ones of the nucleic acid binding molecules from any remaining portion of the protected region; and

coating the remaining portion of the protected region with a second type of semiconductor material.

54. The method according to claim 53 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

55. The method according to claim 53 wherein the nucleic acid template is DNA.

56. The method according to claim 53 wherein the nucleic acid template is RNA.

57. A method for making a capacitor, the method comprising coating parallel regions of a nucleic acid molecule template with a conductive material, each of the coated parallel regions coupled to a lead.

58. The method according to claim 57 further comprising:

protecting at least one spacer region of the nucleic acid molecule template using at least one nucleic acid binding molecule;

removing the nucleic acid binding molecule from the protected spacer region after the coating of the parallel regions; and

removing the spacer region of the nucleic acid molecule template.

59. The method according to claim 57 wherein the nucleic acid template is DNA.

60. The method according to claim 57 wherein the nucleic acid template is RNA.

61. A method for making a capacitor, the method comprising:

protecting a dielectric region of a nucleic acid molecule template between parallel regions of a nucleic acid molecule template with at least one nucleic acid binding molecule;

coating unprotected parallel regions of the nucleic acid molecule template around the dielectric region with a conductive material;

removing the nucleic acid binding molecule from the dielectric region; and

coating the dielectric region with a dielectric material.

62. The method according to claim 61 wherein the nucleic acid template is DNA.

63. The method according to claim 61 wherein the nucleic acid template is RNA.

64. A method for making a transistor, the method comprising:

protecting a central region and two of three adjacent branch regions of a nucleic acid molecule template with nucleic acid binding molecules;

coating unprotected regions of the nucleic acid molecule template with a conductive material;

removing the one or more nucleic acid binding molecules protecting the central region of the nucleic acid molecule template;

coating the central region with a first-type of semiconductor material;

removing the nucleic acid binding molecules from the protected branch regions; and

coating the branch regions with a second type of semiconductor material.

65. The method according to claim 64 wherein the first and second types of semiconductor materials are N-type and P-type semiconductor materials.

66. The method according to claim 64 wherein the nucleic acid template is DNA.

67. The method according to claim 65 wherein the nucleic acid template is RNA.

68. A method for making an inducer, the method comprising:
wrapping a nucleic acid molecule template around at least one protein; and
coating the nucleic acid molecule template with a first conductive material.

69. The method according to claim 68 wherein the protein comprises a histone-like protein.

70. The method according to claim 68 wherein the nucleic acid template is DNA.

71. The method according to claim 68 wherein the nucleic acid template is RNA.